

REMARKS

Favorable consideration of this application is respectfully requested.

Claims 1-45 are currently active in this case. Claims added 42-45 have been added by way of the present amendment. Each new Claim is supported by the specification and claims as originally submitted and no new matter has been added.

In the outstanding Official Action, Claims 1-41 were rejected as being unpatentable under 35 U.S.C. § 103(a) over *Gilbertson* (U.S. Pat No. 6,510,405) in view of *Trimberger* (U.S. Patent No. 5,650,946).

Applicants respectfully traverse the rejection of Claim 1 under 35 §103(a) over *Gilbertson* (U.S. Pat No. 6,510,405) in view of *Trimberger*. Claim 1 recites:

A method for performing a simulation process for a design using a set of existing stimuli that are specified in a predetermined sequence, the method comprising the steps of:

dividing all possible design states for the design into a plurality of validation regions;

recording simulation history for all the validation regions during the simulation process;

generating a new set of stimuli by examining the existing stimuli based on the simulation history; and

performing the simulation process using the new set of stimuli.

However, the combined references fail to teach or suggest similar subject matter.

Applicants agree that *Gilbertson* provides a system for simulating and verifying circuit designs, including recording simulation data in a virtual history stack. However, Applicants respectfully traverse the assertion on the outstanding

Office Action that describes *Gilbertson* as recording simulation data in a virtual history stack so as “... **to produce corrective action and valid stimulus test vector**” (e.g., (Fig. 5, col. 6, lines 14-44, col. 8 lines 33-60). As thoroughly described in the noted column/lines, *Gilbertson* only records and/or updates collected data from a simulated circuit data. Such data is certainly available to be used to correct circuit designs or other operations, but *Gilbertson* does not make any suggestion to update stimulus data based on the recorded data.

Applicants also respectfully submit that combining a reference that purports to teach generation of new stimuli data with *Gilbertson* is unsupported by any suggestion to do so in *Gilbertson*. As admitted in the outstanding Office Action, “*Gilbertson does not expressly disclose generating a new set of stimuli by examining the existing stimuli based on the simulation history as claimed.*” As further admitted previously, *Gilbertson* discloses “a method and system for simulating and verifying circuit designs ...”. However, absent a teaching or suggestion to generate stimuli by examining the existing stimuli based on the simulation history, *Gilbertson* cannot be inferred as implying such generation. Therefore, Applicants also respectfully traverse any combination of references to supplement that lacking in *Gilbertson* without a proper suggestion to do so. Accordingly, Applicants respectfully submit that the combination of *Gilbertson* and *Trimberger* is not suggested.

Regarding *Trimberger*, Applicants respectfully traverse the assertion in the outstanding Office Action that states *Trimberger's* logic simulator “... **generates simulation stimuli based on the simulation data or simulation history data for efficient logic simulation**” (e.g., col. 4, lines 38-62, col. 6, line 32 to col. 7 line 42). In fact a close review of *Trimberger* reveals that *Trimberger's* logic simulator is adapted to show a node can be evaluated by looking forward or backward through a history stack of the node (col. 4, lines 51-52; col.), such an operation

does not generate stimulation data, nor does it generate “.. ***a new set of stimuli by examining the existing stimuli based on the simulation history,***” as claimed in Claim 1.

Trimberger does note that, upon review of the history, and upon finding a questionable reading, “... *the user may implement any desired changes*” (col. 4, lines 55-56). However, such changes are not described as generating new stimuli data, and *Trimberger* goes on to note that *the “user may then restart the simulation or may step to a prior or later point in simulated time and begin the simulation of the improved circuit at that point.”* Thus, Applicants respectfully submit that *Trimberger’s* desired changes are directed to improving the circuit and not to the generation of a new set of stimuli.

Trimberger also notes re-running a simulation with node values changed (e.g., col. 4, lines 11-12). However, changing node values is not a generation of “.. ***a new set of stimuli by examining the existing stimuli based on the simulation history,***” as claimed in Claim 1.

Further, Col. 6, lines 31-57 of *Trimberger* only describes stepping backward in the simulation to a particular time or times to evaluate circuit operations. In fact, col. 6, line 57 specifically describes that, through *Trimberger’s* operations, “*There is no need to reevaluate any of the nodes while stepping through the simulation.*” However, if *Trimberger* did produce a new set of stimuli, a reevaluation at every node connected or affected by the new stimuli would require reevaluation.

Accordingly, Applicants respectfully note that the applied references are both not directed toward nor do they suggest Applicants claimed generation of “.. ***a new set of stimuli by examining the existing stimuli based on the simulation history.***” More importantly, even if the references are combined, Applicants

claimed invention does not result because both *Gilbertson* and *Trimberger* fail to teach or suggest the claimed generation of a new set of stimuli. In fact, based on the above discussions, Applicants respectfully submit that the combined references clearly teach away from that same subject matter. Accordingly, Applicants respectfully submit that Claim 1 is patentable over the cited references.

Applicants respectfully note that the remaining independent claims also contain limitations that are similarly absent from the combined references. For example, Claim 4 recites *"transforming the taken stimulus into an interesting stimulus based on the simulation history,"* Claim 10 recites *"generating an interesting stimulus in accordance with the stimulus specification based on the simulation history of the validation regions."* Claim 13 recites *"transforming the taken stimulus into an interesting stimulus based on the simulation history."* Claim 19 recites *"means for generating a new set of stimuli by examining the existing stimuli based on the simulation history."* Claim 22 recites *"means for transforming the taken stimulus into an interesting stimulus based on the simulation history."* Claim 28 recites *"means for generating an interesting stimulus in accordance with the stimulus specification based on the simulation history of the validation regions."* And, Claim 31 recites *"means for transforming the taken stimulus into an interesting stimulus based on the simulation history."* Applicants also respectfully note that the above cited claim limitations distinguish *Gilbertson* and *Trimberger*. Accordingly Applicants respectfully submit that the above noted claims cannot be considered obvious in view of the combined references. Accordingly, Applicants respectfully submit that Claims, 4, 10, 13, 19, 22, 28, and 31 are also patentable over the cited art.

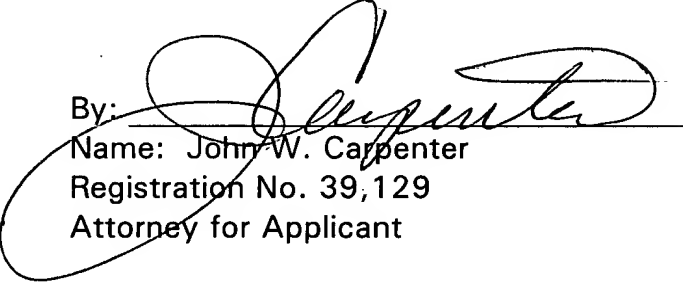
Based on the patentability of independent Claims 1, 4, 10, 13, 19, 22, 28, and 31, Applicants further respectfully submit that dependent Claims 2-3, 5-9, 11-12, 14-18, 20-21, 23-27, 29-30, and 32-45 are also patentable.

Consequently, no further issues are believed to be outstanding, and it is respectfully submitted that this case is in condition for allowance. An early and favorable action is respectfully requested.

Respectfully submitted,
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